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January 17, 2012

David W. Ware, Primary Author
California Energy Commission
High Performance Buildings and Standards Development Office

Re: Proposed Compliance Option for Altherma Air-To-Water Heat Pumps

Dear Dave:

After reviewing the information posted on this proceeding's website December 6th 2011, I have concluded that the proposed HSPF efficiencies appear to be incorrect. These numbers were converted from COP values derived from an EN 14511 test for equipment that **only** provides low temperature space heating for applications such as uncarpeted radiant floor heating. (EN 14511-2 Table 9).

The Altherma DOE interim Waiver Notice in Federal Register / Vol. 74, #239 / Tuesday, December 15, 2009, states, in part: "The domestic hot water portion of the Daikin Altherma system is an integral component of the system, and it cannot operate independently. The applicable DOE test method does not account for the Daikin Altherma system's energy performance because the test method does not accurately evaluate the integrated domestic hot water portion of the system ..."

Therefore, the only Altherma systems covered by this DOE Waiver are combined hydronic systems that specifically include either the 50 or 80-gallon indirect DHW tanks listed in the Waiver. The efficiencies of these heat pump systems typically decrease as the required **Leaving Water Temperature** increases. Space heating for buildings that include carpeted slabs, flat panel radiators or rooms with large glazing to floor area ratios will usually require higher LWTs than that assumed (95 deg. F.) in the current proposal. Also, while space heating is only required for part of the year, domestic hot water, which requires a significantly higher LWT, is required every day of the year. For these and other reasons, the heating COPs that are the basis of this compliance option should be based on EN 14511 tests (EN 14511-2 Table 9) using an LWT of 45 deg. C. (113 deg. F.) not 35 deg. C. (95 deg. F.) In addition, the equipment tested for this compliance option should be the U. S. 60 Hz. models that Daikin would sell in California, not European 50 Hz. Units.

Keeping the 35 deg. test results will mislead consumers into expecting higher heating efficiencies than their systems will usually provide, and put manufacturers that list their system efficiencies at a higher, more conservative LWT rating at an unfair, competitive marketing disadvantage. The COP and HSPF values listed for this compliance option must be revised to correct the unrealistically high heating efficiencies proposed for this equipment.

Sincerely,

Patrick Splitt - CEA
President, APP-TECH Inc.